COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF INDUSTRIAL ACCIDENTS **BOARD NO. 048373-01**

John Wirtz	Employee
Barry Wehmiller Group	Employer
St. Paul Fire & Marine Ins. Co.	Insurer

REVIEWING BOARD DECISION
(Judges Fabricant, McCarthy and Horan)

APPEARANCES
John J. King, Esq., for the employee
Ronald N. Sullivan, Esq., for the insurer

FABRICANT, J. The insurer appeals an administrative judge's decision finding that the employee's myocardial infarction and ensuing incapacity were causally related to stress at work. We agree with three of the insurer's arguments, and recommit the case for further findings. The insurer contends that the judge, 1) failed to make findings regarding the admissibility of the adopted medical opinion pursuant to Daubert v. Merrell Dow Pharmaceuticals, Inc., 59 U.S. 579 (1993), and its progeny; 2) failed to analyze whether the employee's work stress was a major cause of his ongoing incapacity pursuant to
G. L. c. 152, § 1(7A); and 3) impermissibly relied on medical testimony which was based on hypothetical questions assuming facts not in evidence.

The employee is a fifty-two year-old field service technician who installed, serviced and repaired automatic bottle filling machines around the country and the world. (Dec. 342.) On Monday, December 3, 2001, the employer dispatched the employee to a customer in New Jersey to convert its bottle-capping machine to a pump placer, a job which was supposed to take one day. However, after installing the new equipment, the employee was unable to get the machine working properly. A new deadline of Monday, December 10 was set. Over the next few days, the employee was under a great deal of

stress due to problems with the machine, lack of support from his employer, pressure and dissatisfaction from his onsite customer who had spoken with the employee's boss, fear that his employer would lose the account and that he would lose his job, as well as the realization that he would not be able to return to Massachusetts in time for his family's Christmas party. After working until 10:30 p.m. on Friday, December 7, he had dinner with his onsite supervisor, who continually complained about the situation with the machine. The employee was tense and upset and his stomach was in a knot. He went to bed, but awoke around 4:00 a.m. on Saturday, December 8, with pain in his chest and right arm, and a huge gas bubble in his stomach. (Dec. 345.) He returned to work around 7:00 a.m., with continuing chest and arm pain, as well as stomach discomfort. He left work at 5:30 p.m., and when he reached his hotel, was taken to the hospital by ambulance where it was determined that he had suffered a myocardial infarction. (Dec. 342-345.)

The employee's claim for compensation was denied at a § 10A conference, and the employee appealed to a de novo hearing. (Dec. 342.) The insurer denied liability and challenged disability and causal relationship, raising § 1(7A). (Dec. 340.) Dr. Julian Aroesty examined the employee pursuant to § 11A, and his report and deposition testimony were admitted as evidence. The judge allowed the parties to submit additional medical evidence due to the inadequacy of the impartial examiner's opinion.[1] (Dec. 350.) The employee submitted the report, office notes and deposition testimony of Dr. Scott Lutch, his treating cardiologist, while the insurer submitted the report of Dr. Rodney Falk. (Dec. 342, 350.)

In his report, Dr. Aroesty opined:

> While there may be a relationship between physical or severe emotional stress and an acute infarction, there is nothing in the history to indicate a very severe emotional or physical event immediately preceding the heart attack. A more chronic level of stress may contribute to the risk of an infarction but this relationship is not supported well by t[he] scientific literature and is likely to have

[1] The judge found that the impartial report was inadequate because Dr. Aroesty stated that the causation issue was controversial, and because the judge suspected that the doctor's opinion may have been influenced by some incorrect information he had been given regarding the "ejection fraction." (Dec. 350.)

> little or no addition to the usual risk factors for premature coronary dis[e]ase and acute infarction. I think there is no relationship between this patients [sic] acute infarction and factors of employment.

(Aroesty report, 3; Dec. 348.) In his deposition, Dr. Aroesty refined, but did not change, his opinion:

> [I]t's my opinion that evidence that we have that stress earlier in the day can cause a heart attack later in the day is not the kind of strong evidence we have with regard to stress immediately preceding the infarction. So I would say there is no question that he felt himself under a great deal of stress. There is no question that stress can induce an infarction. I can only say that the vast majority of the time there is an immediate relationship between an extremely stressful episode and the infarction and the more chronic effect of this is something that is much less well supported.
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> And so, did this have anything to do with his infarction is the bottom line. I think that's controversial. It may have had something to do with it, but it's not the kind of strong evidence that we would give if he had a stressful discussion with someone at [the customer's] or with his employer and then immediately or after developed chest discomfort, if it was within minutes or an hour or something that he had chest discomfort.

(Aroesty dep. 26-27; Dec. 349-350.) Dr. Aroesty also testified that his opinion that chronic stress is a minor risk factor for a myocardial infarction is the generally accepted position in the medical community. (Dec. 348; Aroesty dep. 35.) The judge found that Dr. Aroesty testified that the myocardial infarction could have occurred as early as late Friday night when the employee first had the stomach discomfort.[2] (Dec. 348; Aroesty dep. 18.)

[2] As will be discussed later, this opinion was based on a hypothetical question to which the insurer objected as including facts not in evidence. The employee did not testify, as the hypothetical asked Dr. Aroesty to assume, that after ordering dinner "he began to develop pain in his stomach and chest." (Aroesty dep. 18.) Rather, the employee testified only that, "I got a big knot in my stomach and couldn't eat any more." Since chest pain beginning at dinner on Friday night rather than at 4:00 a.m. the next morning is not a minor factual error, Dr. Aroesty's testimony based on this hypothetical was entitled to no weight. See Buck's Case, 342 Mass. 766, 770-776 (1966)(expert causality opinion based on misstatements or omissions of material facts entitled to no weight).

The report of Dr. Scott Lutch, the treating cardiologist, concluded that stress had a "significant impact" on the employee's myocardial infarction. (Dec. 350.) Dr. Lutch testified that while acute stress can cause a myocardial infarction, he did not know if chronic stress could. (Lutch dep. 11, 12.) He agreed with Dr. Aroesty that chronic stress is not generally accepted in the medical community as a major contributing cause of a myocardial infarction. (Lutch dep. 26; Dec. 351.) However, he disagreed with Dr. Aroesty's opinion that an acute event generally occurs within an hour or so of the myocardial infarction. (Lutch dep. 33; Dec. 351.) Dr. Lutch testified that all the work stressors found by the judge could be termed acutely stressful events, and, assuming they all occurred,[3] the myocardial infarction was caused by those work activities. (Dec. 352.) He nevertheless did not testify that the employee's myocardial infarction occurred as early as 10:00 p.m. Friday night, but rather that it probably occurred between 4:00 a.m. and 6:00 p.m. on Saturday, December 8, 2001. (Dec. 352; Lutch dep. 32.) Dr. Lutch believed that the employee was totally disabled until December 2002, when he finished his cardiac rehabilitation, and partially disabled thereafter. (Dec. 353.)

Dr. Ronald Falk, the insurer's expert, opined that the employee's myocardial infarction and coronary artery disease were not causally related to his work, but were the result of the cardiac risk factors of hypertension, elevated cholesterol, and cigarette smoking. (Dec. 353.)

In his decision, the judge stated that he was relying on the medical opinions of both Dr. Aroesty and Dr. Lutch, as both doctors agreed that the employee was under a great deal of stress, and that he had suffered a myocardial infarction. However, where they diverged on their causation opinions, the judge found Dr. Lutch's opinion

[3] This list of assumed stressors includes a burning sensation in the employee's chest on Friday night. This particular stressor was not based upon facts in evidence and instead appears as part of a hypothetical to Dr. Aroesty. Even if, on recommittal, the judge finds Dr. Lutch's opinion properly admissible pursuant to Daubert, the factual foundation of his opinion must comport with Mr. Wirtz's particular factual situation. Smith v. Bell Atlantic, Mass. App. Ct., No. 2003 – P - 1522, slip. op. at 11 (June 10, 2005).

persuasive. Both doctors had opined that it was generally accepted that acute, but not chronic, stress could cause a myocardial infarction. The crux of their disagreement lay in their definition of acute stress. (Dec. 350, 351.) Dr. Aroesty defined acute stress as occurring within approximately an hour of a myocardial infarction, while Dr. Lutch indicated that such temporal proximity was not necessary for stress to be considered acute. (Dec. 354.) Finding Dr. Lutch's opinion persuasive, the judge found the work stress to have been acute throughout much of the week, and during the entire period of time between 10:30 p.m. Friday, December 7, and 6:00 p.m. Saturday, December 8. (Dec. 354, 355.) In addition, he found that Dr. Aroesty had specifically opined that the myocardial infarction could have occurred as early as 10:30 p.m., (Dec. 348; Aroesty dep. 18), and, in fact, that "all of the doctors agree" that the employee's heart attack occurred between 10:30 on Friday night and 6:00 Saturday evening. (Dec. 354.) Thus, he concluded that the employee's myocardial infarction was causally related to *acute* stress at work. (Dec. 354-356.)

The judge further adopted Dr. Lutch's opinion that the employee was totally medically disabled until the completion of his cardiac rehabilitation in December 2002. The judge found that, thereafter, the employee was partially incapacitated due to fatigue caused by his heart condition, and had only a sedentary or light work capacity. (Dec. 356-357.)

The insurer first argues that Dr. Lutch's opinion on causation was inadmissible because the theory that a myocardial infarction could be caused by the type of stress experienced by the employee (i.e., stress that does not immediately precede the event) is not generally accepted in the scientific community, and its reliability has not been shown by other means. See Canavan's Case, 432 Mass. 304, 308-309 (2000); Hicks's Case, 62 Mass. App. Ct. 755, 760-761 (2005). Because the judge failed to make any findings regarding the reliability of Dr. Lutch's opinion, we recommit the case for him to do so.

The court in Hicks's Case, supra, recently summarized the judge's role where the admissibility of expert scientific opinion is challenged:

> The judge serves as a gatekeeper on the admission of expert opinion testimony; a ruling on the admissibility of challenged testimony "entails a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue." Commonwealth v. Lanigan, 419 Mass. [15, 26 (1994)], quoting from Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 592-593 (1993). . . .
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> "The ultimate test [for the admissibility of expert testimony] is the reliability of the theory or process underlying the expert's testimony." Commonwealth v. Lanigan, supra at 24. Factors such as general acceptance in the scientific community, peer review, and publication of the theory are relevant but not "indispensable predecessors[s] of admissibility." Id. at 25.

Id. at 760. Thus, "a party seeking to introduce scientific evidence may lay an adequate foundation either by establishing general acceptance in the scientific community or by showing that the evidence is reliable or valid through an alternate means." [4] Canavan's Case, supra at 310, citing Commonwealth v. Sands, 424 Mass. 184, 185-186 (1997). "Opinions regarding medical causation are classic examples of testimony that must be subject to [this] analysis." Canavan's Case, supra at 316.

Here, the insurer challenged the admissibility of Dr. Lutch's opinion on causation. (Dep. 11, 12, 13, 14, 15, 18, 21.) See Canavan's Case, supra at 309 (insurer preserved objection to admission of medical testimony by objecting at deposition to physician offering conclusion regarding nature or cause of employee's condition as lacking a foundation and reiterating objections in written closing). Thus, the judge was required to analyze whether the employee laid an adequate foundation for Dr. Lutch's opinion that ongoing stress over several days could cause a myocardial infarction by making findings to support the conclusion either that his opinion is generally accepted in the scientific community or that it is reliable or valid through an alternate means. Canavan's Case,

[4] In Hicks's Case, supra, the court upheld an administrative judge's finding that the adopted physician's theory of causal relationship was reliable through an "alternate means." Even though no scientific or epidemiological studies showing a causal relationship between the receipt of a flu vaccine and optic neuritis had been admitted, the administrative judge found that case studies published in medical journals suggesting a causal relationship were sufficiently reliable

supra at 310; Hicks's Case, supra at 761. The judge did not perform this analysis. Rather, he interpreted Dr. Lutch's opinion as defining "acute" stress to include stress which precedes the onset of a myocardial infarction by more than one hour. It is the reliability of this opinion which the judge must analyze. Since there may be facts which, if found by the judge, could support his conclusion, we recommit rather than reverse the decision for the judge to determine the reliability, and therefore the admissibility, of Dr. Lutch's opinion. See Mazzarino v. Tocci Building Corp., 15 Mass. Workers' Comp. Rep. 10 (2001)(judge properly analyzed and admitted novel opinion on causal link between stress and stroke; no error).

The insurer also argues that the judge failed to perform an analysis pursuant to § 1(7A),[5] though the insurer properly raised it. We agree. The medical evidence showed, and the judge found, that the employee had a number of "risk factors" which predisposed him to a myocardial infarction. These included hypertension, high cholesterol, and hyperlipidemia. (Dec. 346, 351.) The employee also suffered from coronary artery disease.[6] (Dec. 347, 351; Aroesty dep. 35-36.) The judge made no findings on any of the § 1(7A) factors, nor did he even mention § 1(7A) beyond listing it as an issue. As we recently reiterated in Vieira v. D'Agostino Assoc., 19 Mass. Workers' Comp. Rep. ___ (March 15, 2005), where the defense has been properly raised by the insurer, the judge must make *explicit* findings on the elements of § 1(7A). The judge must first make findings regarding which, if any, of the risk factors and conditions revealed by the medical evidence were pre-existing conditions which resulted from an injury or disease

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to support the medical opinion he adopted. Id. at 761.

[5] G. L. c. 152, § 1(7A) provides, in relevant part:

> If a compensable injury or disease combines with a pre-existing condition, which resulted from an injury or disease not compensable under this chapter, to cause or prolong disability or a need for treatment, the resultant condition shall be compensable only to the extent that such compensable injury or disease remains a major but not necessarily predominant cause of disability or need for treatment.

[6] The employee also had renal insufficiency which the judge found was not a risk factor, (Dec. 346), though Dr. Lutch opined that it was. (Dec. 351; Lutch dep. 11.)

not compensable under chapter 152. He must then determine whether any of those pre-existing conditions combined with the stress the employee suffered at work "to cause or prolong disability or a need for treatment." If he determines that there is a combination, he must then determine whether the compensable injury or disease remains a major but not necessarily predominant cause of disability or need for treatment."[7] § 1(7A). See Vieira, supra at ___.

Finally, the insurer argues that some of the medical testimony relied on by the judge was based on hypothetical questions which assumed facts not in evidence. Specifically, the insurer points out that hypotheticals to both Dr. Aroesty and Dr. Lutch asked them to assume that the employee noticed a burning sensation in his chest and stomach on Friday night during dinner. (Aroesty dep. 18; Lutch dep. 12.) Dr. Aroesty responded that those symptoms would be consistent with the start of a myocardial infarction. (Aroesty dep. 17-19.) Based on that testimony, the judge found that the employee's heart attack could have occurred as early as 10:30 Friday evening during dinner, thus resulting from "acute" stress, presumably as defined by Dr. Aroesty. (Dec. 348, 354.)

The insurer correctly points out that the employee testified only that he had a knot in his stomach Friday night at dinner. He did not testify that he had a burning sensation, or any other sensation, in his chest until 4:00 a.m. Saturday morning. (June 3, 2003 Tr. 53-54.) The insurer objected to Dr. Aroesty's testimony based on the flawed hypothetical assuming chest pain beginning on Friday evening, (Aroesty dep. 17-18), but the judge overruled the objection, (Dec. 358), and relied on the testimony to find that the heart attack could have occurred as early as 10:30 p.m. (Dec. 348, 354.) This was error.

[7] Expert medical opinion must be expressed in terms of probability, not mere possibility. Patterson v. Liberty Mut. Ins. Co., 48 Mass. App. Ct. 586, 592 (2000). Though we are hard-pressed to see how the judge could find that the employee has met this aspect of his burden of proving causal relationship if Dr. Lutch's opinion is found unreliable, we leave it to the judge to make this determination. See Lyons v. Chapin Center Mass. App. Ct., No. 03-J-73 (February 16, 2005)(single justice)(slip. op. at 4.)

A judge has wide latitude in the admissibility of hypothetical questions, and slight factual errors in the question will not undermine an expert's opinion or require reversal of an award. Barbieri v. Johnson Equip., 8 Mass. Workers' Comp. Rep. 90, 94 (1994). However, the assumption that the employee testified to a burning sensation in his chest on Friday evening at dinner is not a minor factual error, but a misstatement of a material fact. As such, Dr. Aroesty's answer to the hypothetical question was entitled to no weight.[8] See Buck's Case, supra at 771; Reddy v. Charles P. Blouin, 14 Mass. Workers' Comp. Rep. 341, 342 (2000). The judge must reconsider his findings that "[a]ll of the doctors agree that the employee suffered a myocardial infarction at some point between 10:30 p.m. on December 7, 2001 and 6:00 p.m. on December 8, 2001," (Dec. 354), and that Dr. Aroesty opined the employee's heart attack could have occurred on Friday at dinner, as they relate to his conclusion that the employee's myocardial infarction was caused by stress at work. In addition, though the erroneous assumption did not affect Dr. Lutch's opinion as to when the heart attack occurred, the judge should re-examine whether it affected his opinion (if found admissible on recommittal) on causation.

Accordingly, we reverse the decision, vacate the benefit award, and recommit the administrative judge's decision for further findings consistent with this opinion.

So ordered.

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Bernard W. Fabricant
Administrative Law Judge

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William A. McCarthy

[8] Moreover, when asked to assume that the onset of the employee's chest pain or pressure was at 4:00 a.m. Saturday, as the employee testified, Dr. Aroesty opined that the myocardial infarction occurred while the employee was in bed. (Aroesty dep. 29-30.) Dr. Lutch, on the other hand, opined that, even assuming that the employee had a burning sensation in his chest Friday evening at dinner, his myocardial infarction probably occurred some time between 4:00 a.m. on Saturday morning and 6:00 p.m. that evening. (Dec. 352; Lutch dep. 31-32.)

Administrative Law Judge

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Mark D. Horan
Administrative Law Judge